Production and logistics system design and simulation

Academic Year: (2022 / 2023) **Review date: 29-09-2022**

Department assigned to the subject: Department of Mechanical Engineering

Coordinating teacher: RIVERA RIQUELME, FRANCISCO ANTONIO

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

OBJECTIVES

- Knowledge and understanding of Production Systems and Industrial Organization.

- Ability to identify engineering problems within the industrial field, to establish different resolution methods and to select the most appropriate one for their solution.

- Ability to design Production Systems that comply with the required constraints, collaborating with professionals in related technologies within multidisciplinary teams.

- Ability to apply their knowledge and understanding to solve problems and design processes in the field of Industrial Engineering in accordance with criteria of cost, quality, safety, efficiency and respect for the environment.

- Skills for the practice of engineering in today's society.

DESCRIPTION OF CONTENTS: PROGRAMME

Introduction to Operations Research
Modeling with Linear Programming
The Simplex Method
Sensitivity Analysis
Duality and Post-Optimal Analysis
Integer Linear Programming
Simulation of Production Systems
Generation of Random Variates
Comparison of Alternative System Configurations

LEARNING ACTIVITIES AND METHODOLOGY

Lectures, exercises and practical sessions. Face-to-face tutorials.

ASSESSMENT SYSTEM

60% Final written exam.

40 % Continuous evaluation. One partial exam will be held. Attendance to the practical sessions.

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

BASIC BIBLIOGRAPHY

- Bazaraa, M.S.; Jarvis, J.J.; Sherali, H.D Programación lineal y flujo en redes, Limusa, 2004

- Hillier, F.S.; Lieberman, G.J Introducción a la investigación de operaciones, McGraw-Hill, 2010

- Law, A.M Simulation Modeling and Analysis, McGraw-Hill, 2015

- Taha, H.A Investigación de operaciones, Pearson, 2017